

ABSTRACT OF THE DISCLOSURE

The present invention provides a method for determining whether a Boolean function is equivalent to Boolean constant 1 within a given subset of the input space. The given subset is divided into a plurality of smaller subsets regardless how the smaller subsets are chosen. If any of the smaller subsets is not a cube, this smaller subset is divided further. If one of the smaller subsets is a cube, the Boolean function is simplified with constant substitution within the cube. If the simplification result is not a constant, the cube is divided further. If the simplification result is constant 0, a negative conclusion is reached. The conclusion is positive if none of the simplification result is Boolean constant 0.

Many of the subset division steps and many of the Boolean function simplification steps can be performed independently of one another, and therefore these independent operations can be performed separately at different times or on different computers. The given subset can expand or shrink dynamically if updates of the given subset are considered in the steps. These dynamic updates make it possible to dynamically adjust the divided subsets.